

# TBC-2

DIGITAL  
TIME BASE  
CORRECTOR

AMPEX

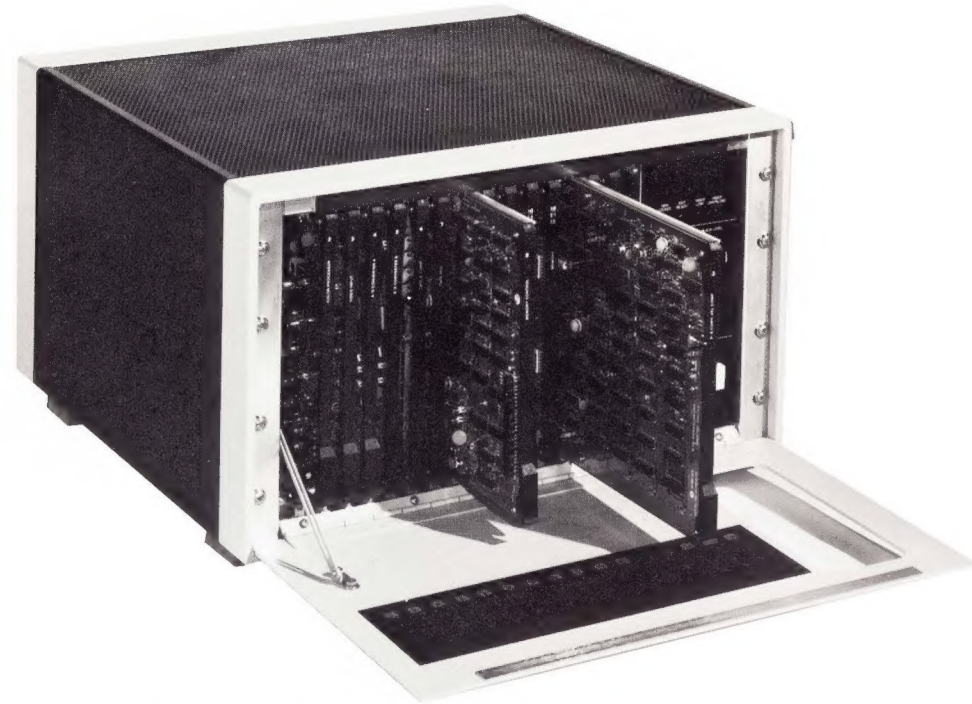




# TBC-2: THE DIGITAL TIME BASE CORRECTOR FOR ALL REASONS

The TBC-2 from Ampex is designed as the one product to fill the widest possible variety of time base correction requirements. It's the TBC to use with any non-segmented helical VTR.

Whether it be portable field production, broadcasting, editing, duplication, dubbing, closed circuit and cable TV distribution, production or general playback, the TBC-2 has the greatest flexibility in use. What's more, it's the only TBC to use with the latest in helical VTR production magic from Ampex, the VPR-2 with the AST® Automatic Tracking System and fully variable speed playback.



## Variety of Application, The Secret of the TBC-2

The need for time base correction is obvious. You buy a TBC whenever production of the highest quality, stable, picture from a video tape recorder is required. The question is, *which* TBC?

The TBC-2 by Ampex combines all of the most desired features of stand-alone time base correctors, with unsurpassed signal performance.

The Dynamic Correction signal processing feature of the TBC-2 incorporates both averaging and line-by-line signal processing techniques. No matter how unstable your playback is, (even occasional missing or double sync), the TBC-2 automatically gives you the best picture possible with true, crisp color. Just plug it in and forget it.

The wide flexibility of use that is designed into the TBC-2 gives teleproduction pros in every field the top-level video quality they demand.

## ENG & EFP

The TBC-2, like its predecessor the TBC-1, was developed with consideration for the special needs of electronic news gathering and electronic field production. The harsh environments experienced by equipment "on location" can tax most VTRs past their limits. Gyroscopic errors exceeding 30 television lines are not unusual with 3/4" portable recorders, but the TBC-2 easily copes with gyroscopic errors encountered in field use. It has one of the broadest correction windows and exceptionally smooth over-range characteristics. Even tapes having exaggerated inertial errors which exceed the correction window can be handled.

improper field sequence edits are automatically corrected. VTRs with the simplest editing capabilities can produce a broadcastal signal.

## Picture in Shuttle

When used with the Ampex VPR series production recorders, the TBC-2 produces monochrome pictures at all *shuttle speeds*. Now you can quickly cue to the exact video sequence desired in an editing or cueing situation.

## Non-broadcast without compromise

Training and educational programs that may have been recorded on non-servoed capstan recorders can be duplicated or dubbed up to other formats with our special option installed. No other TBC makes greater sense. A single TBC provides the potential for several VTRs to be used to create the same quality-consistent program. This makes it a long-run economy choice for those video professionals with a variety of helical format equipment.

When it comes to problem tapes, they can be corrected at the front end of a cable broadcasting system. The TBC-2's rapid lock-up permits switching from a large variety of sources.



## Production Versatility

With the TBC-2 you get a big boost to your in-house production versatility as well. Use it with your VTR to do mixing, wipes and other special effects using multiple synchronous sources through a special effects generator. Just lock the output signal from the TBC-2 with the sources to be used. The TBC-2 opens the way to professional results even when using relatively inexpensive VTRs.

## Post Production

Whatever helical-scan VTR you use it with, U-matic VTRs or a one-inch production recorder like the VPR-2, accumulation of successive generation signal errors is prevented with the TBC-2. The superb transparency of its processing circuitry protects image integrity dub after dub.

Editing is faster and more efficient because tape tension errors, incorrect video and chroma levels and a host of other problems are readily overcome. Vertical interval edits can be frame-locked in an instant. Even

## Easy to Operate, Simple to Maintain

Out of the box reliability is the TBC-2's forte. It's ready to go to work immediately. The control panel places operator controls out front for instant access, and provides "push for normal, pull for variable" adjustments. If you do need to go inside, you'll find that built-in diagnostics and maintenance accessibility are two of the TBC-2's outstanding features.

All printed wiring assemblies (PWAs) can be pulled from the front and the power supply swings out from the side. LED function indicators on the PWAs themselves are supplemented by LEDs on the front panel for Gen Locked, Edit Ready, Video Low, and Video Overload. All relevant test points are accessible at the front of the PWAs and an extender card is provided as standard equipment.

## Options

in option modules expand the TBC-2's inherent flexibility to an even greater level. For example, a line-by-line Velocity Compensator with 2nd order correction of color phase errors to boost performance during multi-generation dubbing operations is one option.

Dropout Compensation is covered as well with a unique DOC that differs from some designs because it replaces only the individual dropout, rather than the whole line, using information from a previous correctly-phased line of video.

A heterodyne color processor that is switch-selectable with the standard direct-color recovery system gives additional versatility. It permits the finest possible signal performance from all popular heterodyne recorders, including 1/4", 1/2", 3/4" and 1" machines.

The Non-capstan Servo Accessory is indispensable in applications requiring dubbing with non-capstan servoed VTRs.

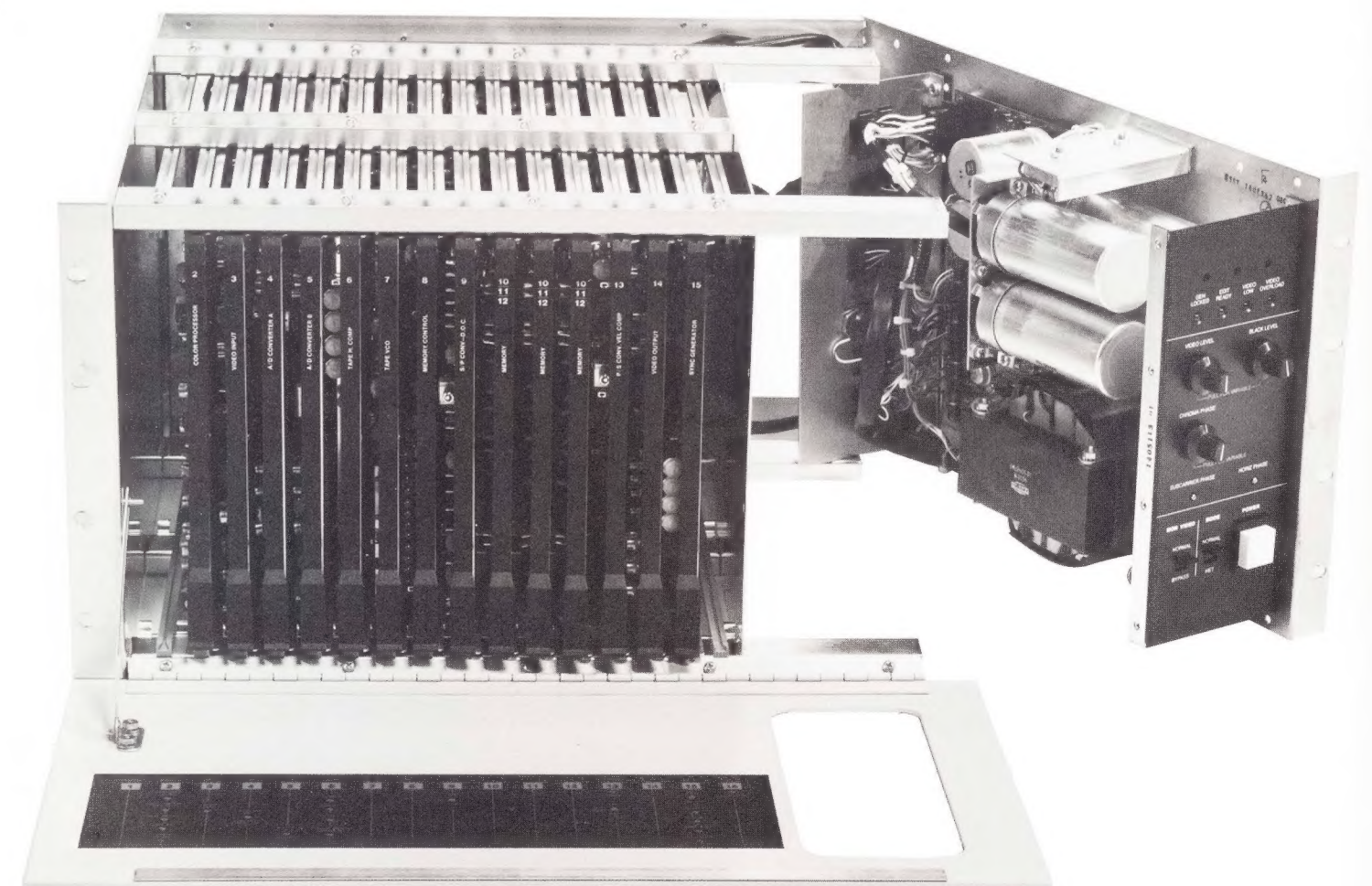
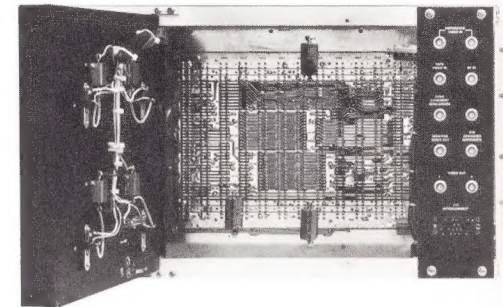
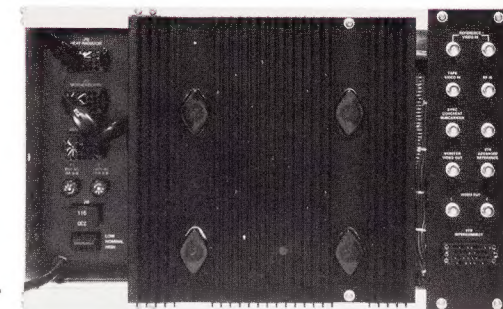
The TBC-2 from Ampex. It's the TBC that gives you enhanced flexibility for every need. The TBC-2 equals requirements twice fulfilled. It's *the* time base corrector for all reasons... by Ampex. The people with the longest record of time base correction excellence are still out front.

## Design Features

- Dynamic Correction\* signal processing system, combines averaging *and* line-by-line correction techniques.
- Correction Range a full 10 lines in all TV standards: NTSC, PAL; PAL-M, SECAM.
- Output processing meets the proposed color RS-170 specifications.
- The only TBC with 2nd order correction of color velocity errors

## Operational Features

- Interfaces with any non-segmented helical-scan VTR.
- The only TBC that provides picture in shuttle and broadcastable slow motion and still framing on the VPR-1 and VPR-2 Production Recorders.
- "Rack Case" permits either rack mounting or portable operation.
- Control panel is remoteable and provides all operator TBC adjustments.
- Unmatched capability for handling gyroscopic errors.
- Complete range of options allows broadest range of application flexibility.





# TBC-2 SPECIFICATIONS

GENERAL		NTSC 525/60	PAL/SECAM 625/50
Digital Sampling Frequency:		10.7 MHz (3 x Fsc)	13.3 MHz (3 x Fsc)
Quantizing Levels:		256 Levels (8 bits)	
Type of Correction:		Dynamic correction™ utilizes both line-by-line and averaging signal processing techniques	
Size: Standard 11" High Rack Case		19" W x 11" H x 18" D	483 mm W x 279 mm H x 457 mm D
Weight:		80 lbs.	36.29 kg
Power Requirements:		less than 250 watts 100/120 VAC ±10% 60 Hz	less than 300 watts 220/240 VAC ±10% 50 Hz
Operating Environment:			
Temperature:		0° to 45°C	0° to 45°C
Humidity:		10% to 90% RH (Non Condensing)	10% to 90% RH (Non Condensing)
VIDEO SIGNAL PERFORMANCE			
Bandwidth:		Flat (± .5 dB) to 4.2 MHz	Flat (± .5 dB) to 5.5 MHz
Signal-To-Noise Ratio¹:		56 dB	56 dB
Differential Gain²:		2°	3°
Differential Phase²:		2%	3%
Transient Response (2T Pulse):		1% K Factor	1% K Factor
TIME BASE PERFORMANCE			
Correction Range (Window):		Greater than 10 Horizontal Lines on all Standards	
Output Jitter³:			
Color		NTSC ± 2.5 nsec ± 10 nsec	PAL ± 3 nsec ± 20 nsec
Monochrome			SECAM ± 20 nsec
INPUT SIGNALS			
Tape Video:		1 V ± 2 dB Composite Video (75Ω)	
Reference Video:		1 V ± 2 dB Composite Video or Color Black (Loop thru or 75Ω)	
Dropout Compensator: (Optional)		.5 to 4 Volts R.F. from VTR or TTL Dropout Pulse (Dropout = Low)	
OUTPUT SIGNALS			
Video Output (3):		(a) 1 V Composite (75Ω) (b) 1 V Composite or Non Composite (75Ω) (c) 1 V Composite (75Ω) Monitor Output Switchable Normal/Bypass	
Sync Coherent S.C.:		2 V P-P Sine Wave at S.C. Frequency	
VTR Advanced Reference:		Composite Sync @ Color Video Level (75Ω) or TTL Level or Vertical Drive @ TTL Level (Jumper Selectable)	

Note 1: VTR-TBC system signal-to-noise ratio is determined primarily by VTR performance, e.g., 42 dB VTR S/N = 41.3 dB System S/N. 46 dB VTR S/N = 45.0 dB System S/N. This gives an equivalent TBC S/N ratio of 56 dB.

Note 2: Measured using a non-synchronous, subcarrier, modulated ramp with subcarrier amplitude equal to that of the color burst.

Note 3: Output jitter is directly dependent on the S/N of the input signal. Specification based on an input S/N of 48 dB.

Ampex reserves the right to make product and specification changes at any time without notice.



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